Southeast Wisconsin's Ephemeral Pond Citizen Monitoring Network

Project Strategy Overview

Wisconsin Department of Natural Resources & University of Wisconsin Extension

Purpose:

This document explains the ephemeral pond citizen-based monitoring network concept and strategy to existing and prospective Partner organizations. This document includes:

a) a description of project goals and objectives
b) the rationale for establishing a regional ephemeral pond citizen-monitor network
c) the anticipated steps and timeline for developing the network
d) the description of Partner benefits, roles and responsibilities, and
e) a general description of citizen-monitor training and coordination.

This project is considered a 'level 3' special project by the Wisconsin Citizen-Based Water Monitoring Network. The following web link gives more information about the project and how to become involved as a Partner: http://watermonitoring.uwex.edu/level3/WIephemeral.htm

Project Staff Contacts

Individuals or organizations interested in participating at the Partner level, please contact:

Gail Epping Overholt
gail.overholt@ces.uwex.edu
414-290-2434

Or:

Tom Bernthal
thomas.bernthal@wisconsin.gov
608-266-3033

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Contents

Abstract & Project Timeline: 2007-2008

Ephemeral ponds are local 'epicenters' of high species diversity and provide critical wetland habitat for resident and migratory animals. These wetlands are also among the least understood and the most at risk – especially in the rapidly urbanizing coastal counties of southeast Wisconsin. In 2006, as part of the Wisconsin Ephemeral Ponds Project (WEPP), the Wisconsin Department of Natural Resources (WDNR) and Southeastern Wisconsin Regional Planning Commission (SEWRPC) began mapping, inventorying and monitoring ephemeral ponds to characterize their variety and ecological significance. This knowledge can be used to develop guidelines for their management, protection, and restoration.

The mapping component of this effort involves a combination of conventional air-photo interpretive techniques and geographic information system (GIS) data to identify "potential ephemeral ponds" (PEPs). The monitoring component aims to build a citizen monitoring network to verify and document the locations of mapped PEPs and provide descriptions of ephemeral ponds in southeastern Wisconsin. Citizen monitors will scientifically document the physical characteristics, associated land-cover, human disturbance and biological characteristics of ephemeral ponds while creating public support for stewardship of these fragile areas. Project Partners include local environmental education organizations interested in sponsoring one or more volunteers to carry out the monitoring protocols.

Project Timeline – 2007/2008

EVENT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
ORIENTATIONS											
TRAININGS											
DATA ENTRY TRAINING											
FIELD MONITORING											
MID-SEASON MEETINGS											
SEASON-END FORUM											

During its first year the project will focus on developing monitoring protocols, recruiting volunteers, providing them with training, equipment and logistical support and building working relations among partners to establish an effective citizen-monitoring network. We aim to build a tiered system with nested monitoring levels that attain increasingly ambitious objectives. Higher levels will require an increase in volunteer time commitment, equipment and expertise. Volunteers and organizations can choose the level that is appropriate for them and those who begin at the first level can move to higher levels as they gain skill and confidence. Quality control measures and training will be incorporated into all levels. For 2008, the first set of training sessions is being offered by WNDR, UW-Extension staff and additional experts to prepare the first group of citizen monitors. Logistical support for training and field monitoring will be provided by partner organizations. During the initial field season the focus will be on evaluating quality control issues and working relationships, with a season-end forum planned to make recommendations for the future.

The Need For an Ephemeral Pond Citizen-Monitoring Network

Ephemeral Ponds are critical habitat for amphibians and other biota

Ephemeral ponds are best known for their use by certain frog and salamander species that rely on this unique environment for successful reproduction. Many other biota from aquatic insects to snakes, turtles, wading birds and ducks rely on the wide variety of ephemera pond habitats for their well-being.

Ephemeral Ponds are difficult to map and protect

The small size and seasonal nature of ephemeral ponds make them difficult to map, so they have sometimes been missed in existing wetland inventories. Ephemeral ponds exhibit an annual cycle of 'ponding' and drying, and are often not recognized as wetlands during their dryer phase. As a result they can be overlooked by landowners, land use planners, and regulators. They may be lost to land development if they are not documented in wetland mapping efforts. The U.S. Environmental Protection Agency's (EPA) Declining Midwest Amphibian Habitat Partnership has identified ephemeral ponds as the wetland type most likely to fall through the cracks of regulatory programs and planning efforts throughout the Great Lakes states.

Citizen monitoring can provide data to help improve new mapping methods

An accurate inventory of ephemeral pond wetlands is a fundamental step in their protection through regulation and land use planning. Through improvements in technology and access to geographic information, the Southeastern Wisconsin Regional Planning Commission (SEWRPC) and the Wisconsin Department of Natural Resources (WDNR) are adapting mapping techniques to improve detection of ephemeral ponds that were previously difficult to separate from other land-cover types. Using these methods SEWRPC and WDNR project staff have identified many "Potential Ephemeral Ponds" (PEPs). There are far too many PEPs for existing project staff to visit. A network of volunteers can visit many more sites. Volunteers can help us to assess our mapping accuracy across the varied landscape of southeastern Wisconsin.

We need basic data on the physical and biological aspects of ephemeral ponds

We need basic inventory data to document the variety of ephemeral pond habitats based on their hydrologic regime, plant community and associated wildlife. While the Wisconsin Wetland Inventory identifies vegetation type and hydrology in broad categories, these are not sufficient to distinguish ephemeral ponds as a unique class. For example, there is no distinction between ephemeral ponds and wet meadows or wooded wetlands although they vary in ecological function.

Citizen-monitors can help supply missing data and improve public awareness

Citizen monitors can extend our capacity to inventory ephemeral ponds and help build a data set to increase our understanding of ephemeral pond ecology. As they learn more about ephemeral ponds citizen monitors can spread the word about their importance. They can help bridge the gap between scientists, landowners and policy makers and drive support for efforts to protect and restore these important wetlands.

Effective citizen monitoring requires the technical and logistical support of a network

To be most useful citizen monitoring must be consistent, scientifically valid, technically supported, well coordinated, and include outreach and communication with a larger audience. Our goal is to build a network of trained volunteers supported by strong partner organizations, with technical training provided by our core group. To aid this process, we developed a multi-tiered monitoring protocol, dataforms, training materials, an easy to use database, a quality control program, and are holding training sessions for volunteers who will begin collecting data in spring of 2008. We need Partner organizations who can provide local volunteer support and organization.

Overview of the Wisconsin Ephemeral Ponds Project (WEPP)

The Wisconsin Ephemeral Ponds Project is a collaboration between WDNR, UW-Extension, Southeastern Wisconsin Regional Planning Commission (SEWRPC), local non-government organizations and private citizens to map and monitor ephemeral ponds across southeastern Wisconsin. The primary objectives of WEPP are to develop methods and guidelines for mapping and monitoring ephemeral ponds and demonstrate their use in southeastern Wisconsin. We will build a working citizen monitoring network with active participation by well-trained volunteers to gather consistent scientific data. Interpretation of that data will improve our understanding of the physical characteristics and biota of ephemeral ponds, while spreading awareness of their value. This will facilitate their inclusion in planning efforts for protection and restoration of wetlands in Wisconsin. As the network utilizes the monitoring protocols and gives us feedback we plan to improve them where needed. In the next several years we expect to build a self-sustaining network in southeast Wisconsin that can provide a model to expand to other regions of the state. We currently have commitments of resources and funding to support the network through the 2009 field season.

The Ephemeral Pond 'Partner' Concept

We seek to establish a network of committed organizations that can serve as "Ephemeral Pond Partners" to recruit and support citizen-volunteers to monitor select ephemeral pond sites. Partners will gain an additional environmental education and action program to offer their public that uses the technical support of WDNR, UW-Extension and SEWRPC. Currently, several organizations have committed to partnering with the WEPP project. Depending upon each organization's specific resources, as Partners, they will provide the needed facilities and coordination time to support citizen monitoring teams. The collective expertise, resources, and efforts of all participants will create the infrastructure needed to establish a self-sustaining regional Ephemeral Pond Monitoring Network.

Many organizations have already committed time, talent and resources to make this project successful. WDNR staff from the Central and the Southeast Regional offices provide project management, limited field monitoring equipment and technical support for survey methods, data collection, and data management UW-Extension staff will assist in the development and delivery of educational materials and in training and capacity-building for the citizen monitoring network. The Wisconsin Wetlands Association (WWA) has committed time and resources for website publicity and for sponsoring a Sharing Forum at the end of the field season to share

and discuss individual experiences and opinion on project success. SEWRPC is providing expertise to help map ephemeral ponds in addition to updating the region's wetland inventory. The Sheboygan and Ozaukee County Planning Departments have committed staff time to aid with ground truthing data for the mapping component during the 2008 growing season.

Steps to Implementing an Ephemeral Pond Citizen Monitoring Network

This project is an effort to capture the intrinsic desire people have to learn more about their environment and contribute to a common good. We have identified six major tasks necessary to successfully meet project goals.

Task 1: Soliciting 'Partner' and Public Participation

We will conduct 'Partner Forums' to solicit Partner involvement and gather input to guide the organization and implementation of the network across Wisconsin's southeastern coastal region. The strategic plan that results from this effort will:

a) outline Partners' respective commitment, resources, roles and responsibilities,
b) address Partners' recommendations on staff and citizen training sessions,
c) identify criteria for defining a Partner's geographic extent for monitoring,
d) define monitoring frequency, season and dates, and
e) establish both short- and long-term monitoring sites (to allow for trends assessment and enhance educational opportunities).

Following each Partner Forum, meeting minutes, including resolutions and monitoring agreements will be summarized and provided to Partners. (July – September, 2008)

Task 2: Encourage coast-wide citizen-volunteer participation

We will continue to solicit citizen interest and participation by conducting more public Citizen-Monitor Orientation meetings. In each orientation, citizen participants and potential partners will have the opportunity learn about the project and meet with project staff. The sessions will cover why citizen involvement is needed, and the commitment, roles and responsibilities expected of ephemeral pond citizen monitors. Ideally, these orientation forums will serve to recruit additional citizens to the network and identify a Partner organization they will work through. (November, 2007 – January, 2008)

Task 3: Develop and Conduct Partner/Citizen Monitor Training Sessions

We will develop training sessions for Partners and volunteers to enable them to collect consistent scientific data for regional inventories. Two volunteer training sessions will be held to introduce monitoring concepts and methods in a way that best enables participants and Partners to confidently monitor on their own following the sessions. Training sessions will be developed through guidance from Wisconsin's Citizen-Based Water Monitoring program, other ephemeral pond monitoring conducted previously in southeast Wisconsin, and approaches used by other states.

The first training session will be held indoors in late winter. The goal of the first training session is to instruct volunteers in "Map-level" monitoring. This will include introduction to ephemeral pond ecology; map, compass and GPS use; procedures used to measure water depth, temperature, and pond-basin dimensions; and to assess land-use and disturbance in order to classify ephemeral pond landscapes.

The second training session will occur in early spring close to the expected beginning of the monitoring field season and will take place both inside and outdoors. Its main focus will be an introduction to gathering "Baseline" data that describe plant and animal community composition. Experts will lead participants in learning to distinguish different species and life stages of key amphibian and macroinvertebrate groups that are expected to occur in ephemeral ponds. The outdoor component will give participants a first-hand experience of a real ephemeral pond, and the practical experience of collecting data and filling in information on the ephemeral ponds data form. It will also cover equipment usage and maintenance procedures. (February, March 2008)

Task 4: Develop Ephemeral Pond Monitoring Methods, Guidelines, and Sites

We will develop standardized methods to monitor ephemeral ponds according to a 'nested' monitoring-level approach (see Fig. 2). All 'potential ephemeral pond' sites (PEPs) that occur within a certain proximity of each Partner's headquarters or visitor center will be mapped to provide their volunteers with ephemeral pond monitoring opportunities. For each Partner, an exclusive list of possible sites will be provided along with maps to aid their efforts in allocating sites to monitor teams and as an aid in locating sites on the ground. Each Partner will receive an electronic version of the map for general reproduction on their in-house printer. Pre-determined seasonal dates will be presented as target windows for which to conduct early-, mid-, and late-season surveys. Just prior to the beginning of the field season (about the time ice goes out on small, shallow lakes and deep water wetlands), WEPP staff will contact each Partner to confirm readiness and offer start-up support if needed. (January – April 2008)

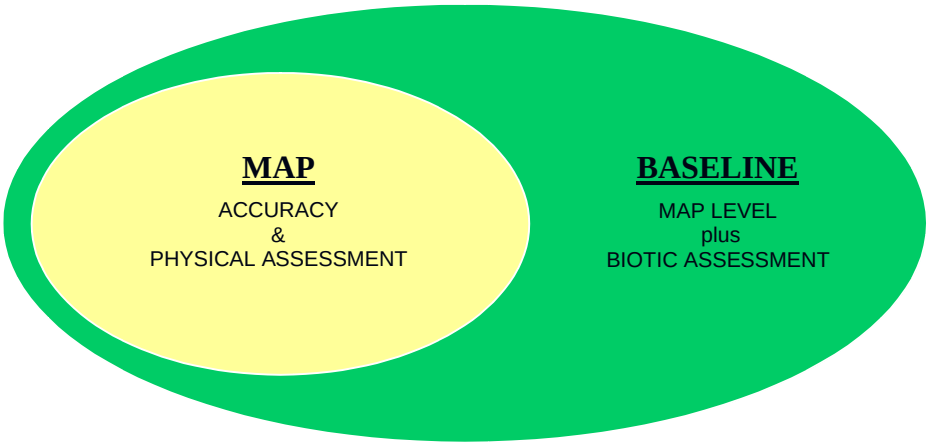
Task 5: Coordinate and Implement Ephemeral Pond Monitoring in 2008

Working together as a network, Partners will coordinate their respective citizen-monitors' (preferably as teams of two or more) field efforts with support from the WDNR and UW Extension staff. As a network, it is our hope that Partners will also view each other as a resource for local support, particularly on issues relating to continued/extended 'one-on-one' training to their respective citizen volunteers. Project staff will be available to facilitate cross-training and to offer support on various technical training components (e.g., web-based data-entry, GPS use, protocol review, taxa identification etc.) on an 'as needed' basis. Partner organizations will be the main contact for citizen-monitors but can indicate to WEPP project staff when they are in need of specific and/or additional support. (March - August, 2008)

Task 6: Develop Concurrent Knowledge-Transfer and Alternative Outreach Strategies

A variety of outreach strategies will be used to reach our audiences including fact sheets, Partner websites, List-serves, Partner newsletters, and an end of season sharing forum. For instance, the Wisconsin Wetlands Association will promote this effort via the Internet and through outreach materials. In addition, the Citizen-Based Water Monitoring Network hosts a web page describing the project for volunteers and Partners available at: http://watermonitoring.uwex.edu/level3/WIephemeral.htm). In late 2008 a 'Sharing Forum' will allow Partners and volunteers to transfer knowledge learned, share field season experiences, complete submission of field data forms, and for evaluation of the project.

Description of Nested Monitoring Levels:



This diagram illustrates two nested ephemeral wetland monitoring levels for conducting field surveys to support the Wisconsin Ephemeral Ponds Project.

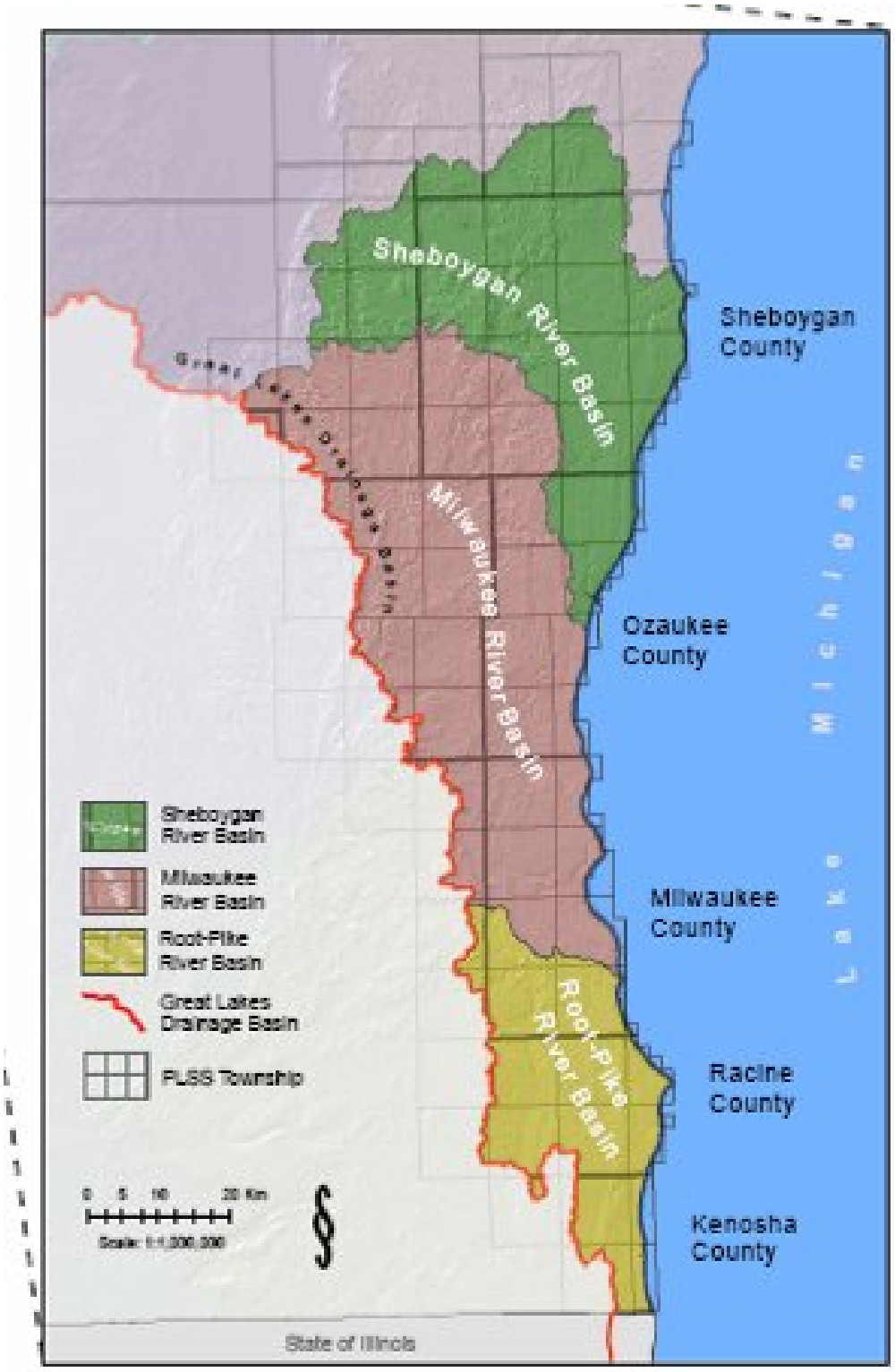
The 'Map' level fulfills the most fundamental monitoring need: to ground-truth mapped potential ephemeral ponds (PEPs) and characterize the surrounding land use and disturbance types. This level requires no knowledge of plant or animal identification, but asks monitors to collect basic information on the presence of water and its depth, basin dimensions and other physical and hydrologic characteristics. The Map level requires the least amount of time and expertise. Map Level monitoring is continued over the course of a growing season to characterize the pond's hydroperiod (water level over time). Map level surveys allow the project core staff to determine if mapped PEPs can be considered Verified Ephemeral Ponds (VEPs).

The 'Baseline' level begins with Map level information but adds the assessment of vegetation structure and the identification of specific plants and animals, the 'biotic' component. Baseline monitoring is conducted to characterize a site's quality and ecological significance, and can be used to guide classification, restoration and management activities. Monitoring takes place at regular 1-monith intervals during the growing season (spring, summer, fall), but may include additional surveys and be conducted into late fall or early winter to track when the basin begins to refill.

WEPP also includes a long-term monitoring component that may be added to the Citizen Monitoring Network if there is interest in the future. Long-term monitoring involves collecting physical and biotic data over multiple years on selected reference sites. Reference sites are initially validated by Map or Baseline level assessment. They will be used to evaluate qualitatively the seasonal and yearly changes in hydroperiod, basin vegetation structure, and plant and animal communities. This monitoring level may be complimented by the use of automated water-level and temperature data-loggers to establish a higher resolution assessment of pond basin hydroperiod and associated basin temperature profiles.

Partners interested in establishing a long-term monitoring site or including one as part of their Citizen Monitoring program should contact Tom Bernthal

Appendix A. Coastal Grant Project Area



Appendix B. Partner Benefits, Roles and Responsibilities

Partner Benefits in participating:

- Partners will receive support to implement the project including an orientation session and methods training for both staff and volunteers, written materials to support monitoring efforts, a database tool to manage data that are collected, a list/map of potential monitoring locations in their area, and ongoing support with general volunteer and program management.
- Equipment provided to Partners to complete the monitoring, including such items as guide books, D-frame kick nets, and other monitoring supplies can be kept for use by Partners.
- Partners will have an additional program offering for interested citizens, and can provide added educational benefit to their local communities about a unique natural habitat type.
- Partners will have the opportunity to draw new constituents to their membership and/or to their programming efforts by augmenting their available programming options with the ephemeral pond monitoring project, and through advertising for other events they are sponsoring at ephemeral pond monitoring orientation and training sessions.
- Partners will have the opportunity to build relationships with other nearby nature centers, DNR, and UW-Extension, which may result in long term partnerships and collaboration. In today's grant-dependent society, partnering with others is essential for success.
- Partners will increase their volunteer "cadre" and expertise through involvement in this project.
- Participants (Partners and volunteers) will receive additional relevant volunteer monitoring information through statewide Citizen-based Water Monitoring Network, including national volunteer monitoring newsletter, *The Volunteer Monitor*, awards opportunities, and additional training and educational programming offerings.
- Partners will gain recognition for their efforts through press releases by project organizers and Partners' website postings on the Citizen-based Water Monitoring Network website (see: http://watermonitoring.uwex.edu)

WDNR/UWEX Responsibilities:

- Support partners in volunteer recruitment efforts.
- Provide Partners with Project staff contact information.
- Develop and conduct an Orientation Forum to introduce the project and its goals and objectives.
- Develop methods and protocols for citizens to monitor ephemeral ponds in a standardized manner.

- Develop and coordinate training sessions for Partner organizations and citizen monitors in ephemeral wetland monitoring methods and protocols.
- Develop in collaboration with Partners printed methods and protocols, monitoring forms, and instruction on data management.
- Provide Partners with an electronic database tool for data-entry, archival, and retrieval of information collected at ephemeral pond monitoring sites.
- Provide equipment (TBD)
- Identify and provide Partners with list of local experts who can assist with identification of invertebrates and amphibians
- Develop and analyze program evaluation surveys
- Develop and coordinate a Citizen Monitor Forum to be held at the close of the field season in 2008
- Provide printed summary report with project outcomes to Partners

Partner Responsibilities:

- In collaboration with the University of Wisconsin-Extension, recruit citizen volunteers for the monitoring project through press releases, direct mailings, in-person recruitment, and organizational newsletters and/or email lists.
- Maintain an updated list of interested citizens, including for each: full name, telephone number, mailing and Email address. Share this contact list with program organizers as requested.
- Collaborate in sponsoring at least one citizen-volunteer orientation session
- Attend two 1-day Partner method orientation sessions held February 20th and March 26th, 2008 at locations TBD.
- Attend two, 1-day citizen training sessions to be held February 23rd and March 29th, 2008 at Pieper Power Center at Mequon Nature Preserve.
- Support citizen monitors representing their organization (i.e. from the local area) in their efforts to conduct ephemeral pond monitoring.
- Assist in establishing access and permission to monitor ephemeral ponds that occur on private lands.
- Coordinate data management and quality assurance for all data collected by citizen monitors, and collect volunteer feedback to program surveys. Provide copies to the project organizers.

- Coordinate and communicate with Partners and project organizers to help fulfill project goals on an ongoing basis (e.g., email, telephone, use of project listserv).
- Coordinate use of equipment for volunteers by collaborating with project coordinators and other Partners.
- Participate in a Citizen Monitor Forum to be held at the close of the field season in 2008.
- Complete a program evaluation survey.

Appendix C. Citizen-Monitor Benefits, Responsibilities and Qualifications.

Benefits

- *Learn about these amazing epicenters of biodiversity from experts through hands-on training and mentorship!*
- *Connect to the greater Wisconsin Citizen-Based Volunteer Monitoring Network*
- *Be an integral part of the ground-breaking effort to identify and assess Ephemeral Ponds in Wisconsin*
- *Meet other interested volunteers*

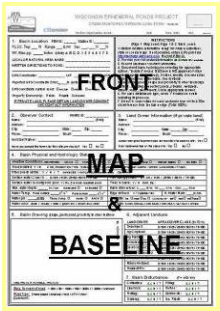
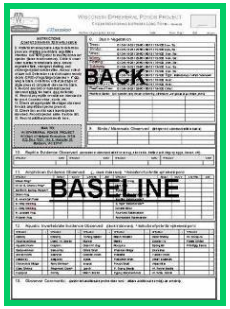
Responsibilities and Commitment

- *Attend program orientation and training sessions to become familiar with the equipment and monitoring forms and procedures*
- *Collect data (in teams of 2) during spring 2008 (equipment will be provided)*
  - *Ground-truth mapped potential ephemeral ponds*
  - *Monitor physical & chemical characteristics of ephemeral ponds*
  - *(Optional) monitor amphibians, macro invertebrates, other fauna observations*
- *Adhere to a monitoring schedule (approximately 4 visits per site)*
- *Report results to Wisconsin DNR or local Partner*
- *Attend Sharing Forum at the end of the Monitoring Season*
- *Complete an evaluation before and after the season*
- *Take care of the equipment & return it in good condition*

Qualifications

- *No science background needed (although it's helpful)*
- *Ability to walk on uneven ground & enter water to access a monitoring site*
- *Desire to work with a Partner and/or group*
- *Tolerance of moderately inclement conditions*
- *Courteous and polite personality*
- *Willingness to follow procedural tasks under supervisory guidance*
- *Willingness to respectfully represent the state/Partner while participating*

Appendix D: Map and Baseline Monitoring Levels

	MAP†				BASELINE†				DATA FORM / PARAMETERS
Description	Ground-truth mapped PEPs including Physical and structural assessment				Map level plus documenting vegetation structure and the occurrence of plant and animal species				 
Why Do It	Eliminate falsely mapped PEP features/Characterize basin type/Support landscape level analysis				Map plus the description of the surrounding landuse and within basin plant and animal communities				
Sample What	A pre-determined set of mapped PEPs				PEPs confirmed as ephemeral wetlands through the Map-level assessment				
Sample When	SP	SU	FA*		SP	SU	FA	WI*	Spring (SP) – Summer (SU) – Fall (FA) – Winter* (WI)
Data Form Sections									
A. Basin Location	X				X				PLSS location, Site name and ID; Directions; GPS coordinates, system used and error; Ownership type
B. Observer Contact	X				X				Full Name and WAMSID; Mailing address; Form completion
C. Landowner Information	X				X				Owner Name and contact; Mailing address; Access permission; Residential Association
D. Physical & Hydrologic Status	X				X				Weather condition; Basin isolation and type; Surface water cover, Depth, Temp., pH, Color; Canopy cover; Basin dimensions and edge type; High water mark height; Substrate type and moisture
E. Basin Sketch	X				X				Sketch of shape and proximity to other features; Basin photo and ID; Road proximity and type
F. Adjacent Landuse	X				X				Landuse cover and type
G. Basin Disturbance	X				X				Disturbance presence and type
H.Vegetation Structure					X				Vegetation cover and dominant species; Optional plant species list
I. Bird & Mammal Evidence*					X				Bird and mammal species/sign observed within basin
J. Reptile Evidence*					X				Reptile species/sign observed within basin
K. Amphibian Evidence*					X				Amphibian species or group observed within basin
L. Aquatic Invertebrates*					X				Macro-invertebrate species or group observed within basin
M. Observer Comments	X				X				Specific notes to qualify observations
Monitoring Effort	**30-60 min/site**				**1 – 2 hr/site/visit**				**Does not include equipment prep, form management, or travel**